



Text fig. 2.

Side view of part of the body of male animal (removed from shell) with mantle (m) folded back to expose penis (p), siphon (s), proboscis (pr).

NOTES ON LITTORINID NOMENCLATURE

By DONALD F. McMICHAEL, Ph.D.*

A revision of the nomenclature of the Australian littorinid molluscs is necessitated by Guiler's recent paper (1958) on the Tasmanian species of *Melarhappe*. As the littorinids are key members of the littoral fauna used as marker species in studies of littoral zonation, it is important that their nomenclature should be stabilized. Guiler claimed to show that *Melarhappe* was not an acceptable genus for the two Tasmanian species, usually listed as *Melarhappe unifasciata* (Gray) and *M. praetermisssa* (May). He considered that these species were not generically separable from *Littorina* s.s. It was considered necessary to check the data presented by Guiler and to reach some definite conclusion regarding the validity of the genus. In conjunction with this study, recent work by Abbott (1954) necessitates a revision of the nomenclature of the common *Nodilittorina*.

Guiler's paper contains a number of statements which are incorrect, so the essential facts are given here. The genus *Littorina* Ferussac 1822 was introduced on p. xxxiv of the *Tabl. Syst. des Moll.*, without included species. Iredale (1912) and other workers had assumed that Rang was the first to designate a genotype for *Littorina*, (1829, *Man. Mollusques*, p. 185), the species selected being *Nerita littoralis* L., (= *Turbo obtusatus* L.) However, Winkworth (1922) and Bequaert (1943) have shown that there is an earlier type selection for *Littorina*, by Blainville (1828), who was the first to refer definite species to *Littorina*, and selected *Turbo littoreus* Linne as type species. This, of course, must be accepted, and alters the concept of *Littorina*, because *obtusata* L. is a rather aberrant

*Curator of Molluscs, Australian Museum, Sydney.

species. The latter species was made the type of the genus *Neritrema* Recluz by subsequent designation (Dall, 1909), so that generic name will be available for the *obtusata* series.

Iredale first introduced the name *Melarhapse* into Australian molluscan nomenclature in 1912, and it has been generally adopted since then. Elsewhere it has been used either generically or subgenerically under *Littorina*, but, surprisingly, reinvestigation of the name reveals that it was never validly introduced and is hence unavailable. Iredale (1912) cited the original introduction of *Melarhapse* as follows: "Commonly quoted as of Muhfeldt, this name was introduced into literature by Menke (*Synops. meth. Moll.*, 1828, p. 23), thus: *Paludina glabrata* Zgl. (*Turbo coerulescens*, Lam., *T. rupstris* Chabr., *Melarhapse glabrata*, Mhlfld.)." Iredale and other workers, including Dall (1909), Winkworth (1922) and Bequaert (1943) have accepted this to be a valid introduction of the genus with the type species by monotypy *Paludina glabrata* Pfeiffer = *L. neritoides* (L.).

However, at the Paris Meetings of the International Congress of Zoology, 1948, it was decided that the publication of a generic name merely as the generic component of a binomen cited in the synonymy of a nominal species, did not constitute sufficient indication to make the generic name available. This decision has now been incorporated into the new rules, and therefore the introduction of *Melarhapse* (which exactly falls within the meaning of the above decision) was invalid, and the name is not available. It is therefore necessary to find the first valid name for the taxon which has been known as *Melarhapse*, that is, the group of species allied to *Littorina neritoides* Linne. This could be either another name with a species of "Melarhapse" as type species, or the first valid introduction of *Melarhapse* which would fulfil the conditions of availability.

A number of alternative introductions of *Melarhapse* or slight emendations of this name are listed in the various "Nomenclators" such as Herrmannsen, Sherborn and Neave. It has not been possible to check all of these because of the unavailability of literature, but it appears that the generic name to be adopted will be *Melarapha* Cristifori and Jan, 1832. I am indebted to Dr. Joseph Bequaert for the information that this generic name was validly introduced as a division of *Paludina*, without characters, but monotypic for "*Paludina glabrata* Meg. (= Muhfeldt)" which correctly is *Paludina glabrata* Pfeiffer = *Littorina neritoides* (L.). Until it can be shown otherwise, *Melarapha* Cristifori and Jan will serve as an acceptable substitute for *Melarhapse* Menke, as it differs only slightly in spelling and pronunciation so that its use will cause little confusion."

We then have to consider two generic names, *Littorina* Ferussac, with *littoreus* Linne as type, and *Melarapha* Cristifori and Jan, with *neritoides* Linne as type. Guiler states that *Melarhapse* was never followed in Europe, and then proceeds to quote Quoy and Gaimard (1833), who used *Littorina* for *diemenensis*. This is hardly surprising, for in 1833 restricted genera like *Melarhapse* were seldom used. Guiler also cites the Conchological Society's list of British Mollusca, in which *Littorina* is used for *obtusata* L. This again is not surprising, for at that time *obtusata* was thought to be the type species of *Littorina* and could not have been cited otherwise. In any case, *Melarhapse* was never applicable to the *obtusata* series. Finally, Guiler cites Moore's (1937) usage of *Littorina* for *littorea* L., and Thiele's omission of *Melarhapse* in Kukenthal's

Handbuch der Zoologie. In both cases his argument is incorrect, for *littorea* L. now known to be the type of *Littorina*, has never been considered to belong with *Melarhapse*, and Thiele (1929) did use the name as a subgenus of *Littorina* in his *Handbuch der Systematischen Weichtierkunde*, if not in Kükenthal's *Handbuch!*

Guiler omitted to mention that Winkworth (1922) had adopted *Melarhapse* as a full genus for the British *neritoides*, and that more recently Bequaert (1943) had allowed the name subgeneric status for western Atlantic species. Abbott (1954) has presented some data on the *Melarhapse* subgenus of *Littorina*, which indicates that it might well be considered as a full genus. (Obviously, since *Melarhapse* is to be replaced by *Melarapha*, which has the same type species, argument about the taxonomic status of *Melarhapse* applies equally to *Melarapha*.)

What then is to be the fate of the Australian species commonly referred to *Melarhapse*? Are we to adopt *Littorina*, using *Melarapha* subgenerically or are we to adopt *Melarapha* generically? This is essentially a matter of opinion, depending on the value placed on the characters separating the two groups. In my opinion, *Melarapha* is a well characterised group within the Littorinidae, distinguished by its peculiarly straight and flattened columellar, and apparently also by its egg capsule and penis structure. I therefore propose to retain *Melarapha* for such species as *unifasciatus* Gray and *praetermissa* May.

In reading Abbott's (1954) paper on Atlantic periwinkles, I noted again that the name *tuberculatus* was in use for the western Atlantic *Nodilittorina* as well as the Australian species. I had previously noticed this double usage, but at the time set it aside for further study. Abbott's paper reveals that the Atlantic usage is based on an introduction of *Littorina tuberculatus* by Menke in the *Synopsis Methodicum Molluscorum*, 1st Edition, 1828, p. 25, where reference to Gmelin's *Trochus nodulosus* var *minor* is made. The latter is an invalid name for the West Indian *Nodilittorina*, which differs in size and other characters from the Australian species. Australian workers first adopted *tuberculatus* Menke after Iredale 1924 had shown that Menke in *Verz. Conch. Samml. Malsburg*, p. 10 had used *tuberculatus* for *Trochus nodulosus* Gmelin s.s., that is, the Pacific form. Since the date of the latter paper is 1829, it is anticipated by Menke's 1828 usage, and hence the name *tuberculatus* will have to be left with the West Indian species.

This being the case, we must choose the next earliest name, which appears to be *Littorina pyramidalis* Quoy and Gaimard 1833, which Hedley (1913) used in his Check List, and so the species will return to *Nodilittorina pyramidalis* (Quoy and Gaimard). Abbott (1954) gives a synonymy for the species, which however requires further investigation. A revision of the eastern Australian Littorinidae is anticipated, and the various species will be discussed more fully there.

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COMMENTS ON THE AUSTRALIAN UMBRACULACEAN MOLLUSCA

By ROBERT BURN*

(One text figure.)

For many years two Australian species of molluscs have been referred to the genus *Umbraculum* Schumacher 1817: the reasons given hereunder show why this is incorrect, and a solution to the problem is offered. The present writer, while engaged on an anatomical study of the family Umbraculidae, found that he could not obtain preserved material of the smaller Australian species, *U. corticalis* (Tate) 1889. Thus the observations made here are based purely upon shell characters, the foremost being the muscle scar inside the shell.

From the careful examination of a large series of *Umbraculum* shells, it was observed that the internal scar of the columellar muscle was complete in every case with the exception of the species, *U. corticalis* (Tate). Here the columellar muscle was open on the right side of the shell, and another smaller muscle, the intermediate suspensor muscle, nearly filled the gap between the ends of the columellar muscle. Research through literature showed that this gap in the columellar muscle and the presence of an intermediate suspensor muscle was characteristic of the genus *Tyrodina* Rafinesque 1819 from the north Atlantic and north Pacific Oceans. Together with the genus *Tyrodinella* Mazzarelli 1897, *Tyrodina* comprises the family Tyrodinidae, both genera differing from *Umbraculum* in that the columellar muscle is incomplete. A key to the families and genera

*34 Autumn Street, Geelong., Aust.